

# Checklist #3

## Stormwater Management Plan

Under county ordinance, additional impervious surfaces in a proposed development may trigger the need for a stormwater management plan to obtain a permit. A stormwater management plan is designed to protect downstream water resources and property owners from water pollution, flooding and other damage caused by urban runoff after a development is complete. This check list shows what information needs to be provided and what issues need to be addressed when preparing a stormwater management plan. **All items listed may not be applicable to each site, nor is the list all-inclusive.** It is meant to serve as a guide for the stormwater planner. Using this check list, and following adopted technical standards, will help you prevent unnecessary delays or additional costs in plan reviews. When requesting a "Preliminary Review Letter" on stormwater plans, the engineer should submit enough of the information listed below to allow for adequate preliminary technical review of the plan. Please refer to checklists #1 and #2, for other items related to general site conditions, the proposed development and plans to minimize soil erosion during the construction phase.

### Delineate and Label On Maps (scale 1"=100') & Drawings:

- \_\_\_ North arrow, graphic scale, drafting date/version and designation of source documents for all map features;
- \_\_\_ Existing and proposed watershed, subwatershed, and land use boundaries.  
(Contributing watersheds that extend beyond the site boundaries may be delineated on a separate map.)
- \_\_\_ Delineation of all proposed impervious surfaces, except for single family residences.
- \_\_\_ Existing and proposed Tc/Tt flow paths used to calculate pre/post development flows.
- \_\_\_ Proposed stormwater discharge points (water leaves the site by surface or subsurface flows).
- \_\_\_ Type, size, location and cross-section of all proposed stormwater management conveyance systems (grass swale, diversion, lined channel, storm sewer, etc.).
- \_\_\_ Location and detailed drawings for all proposed stormwater management structures, including cross-sections, profiles, and elevations.  
(stilling basin, grade stabilization structure, detention basin, filtering/infiltration practices, etc.)
- \_\_\_ Proposed drainage easements and widths (in feet).
- \_\_\_ Location of all soil profile investigations with surface elevations and link to support data.
- \_\_\_ Proposed access lanes and sediment disposal areas for future maintenance of stormwater management facilities.

### Provide Supporting Information (summary format – no stacks of computer printouts):

- \_\_\_ Plan narrative describing site drainage, stormwater management objectives, and how the proposed stormwater management plan will meet the objectives and be implemented.
- \_\_\_ Watershed, subwatershed and land use areas (in acres – by watershed, not ownership lines).
- \_\_\_ Impervious surface areas (in acres), except for planned single family residences.
- \_\_\_ Pre/post development TR-55 runoff curve numbers and Tc/Tt values.
- \_\_\_ Pre/post development peak flows for the 2-yr, 10-yr., and 100-yr./24 hour storm events for all proposed stormwater discharge points from the site.
- \_\_\_ Support data for all stormwater practice designs, such as inflow/outflow rates, stage/storage data, hydrographs, outlet designs, infiltration rates, water elevations, etc.
- \_\_\_ Soil profile investigation data (color, texture, groundwater/bedrock depth, structure, etc.) extending at least 3 feet below the planned bottom elevation of any structure/component.
- \_\_\_ Runoff volume calculations needed to show compliance with infiltration standards.
- \_\_\_ 10-yr./24 hour peak flow calculations for all proposed storm sewers and for cross-culverts and open channels with drainage areas > 20 acres.
- \_\_\_ Other hydraulic and hydrologic computations critical to the plan/designs.
- \_\_\_ Impact assessment for discharges to wetlands.
- \_\_\_ Planting and landscaping plans that are critical to the stormwater designs.

**Sample Reviewer Questions:** (Yes, No or Not Applicable)

- \_\_\_ Is the plan stamped by a professional engineer licensed in Wisconsin?
- \_\_\_ Are all plan input parameters clearly stated and all geographic elements used in making the calculations clearly cross-referenced on maps?
- \_\_\_ Does the plan maintain natural drainage patterns, infiltration areas (depressions) and watershed boundaries as much as practical?
- \_\_\_ Does the plan minimize potential downstream/off-site impacts?
- \_\_\_ Is adequate space reserved for stormwater management practices?
- \_\_\_ Does the plan comply with the ordinance peak flow control requirements? Will it be adequate to prevent downstream gullies or streambank erosion?  
*(Standard - check post development against predevelopment 2-yr., 10-yr. and 100-yr/24 hour storms)*
- \_\_\_ Will the plan protect downstream water resources? Does it utilize a "treatment train" effect of filtering the first ½" of runoff?  
*(Standard - control 80% total suspended solids of post development runoff)*
- \_\_\_ Is it coordinated with erosion control efforts? *(combo sediment basin/wet detention)*
- \_\_\_ Are impervious surfaces minimized for the proposed land use? Do they drain to vegetated areas for filtering and infiltration where feasible?
- \_\_\_ Are native plantings used to encourage good soil structure and maximize infiltration?
- \_\_\_ Have adequate soil profile investigations been conducted *(2-3 per stormwater practice)?* Do they support the planned practices *(clay liner for ponds, texture/mottling/bedrock for infiltration)?*
- \_\_\_ Will the plan minimize downstream impacts from increased runoff volumes, such as chronic wetness conditions/flooding? Is there a need or opportunity for infiltration?
- \_\_\_ Does the plan allow attenuation and filtering of flows in vegetated swales?
- \_\_\_ Does the plan minimize hydrologic changes and pollutant loading to wetlands?
- \_\_\_ Does the plan recognize mandatory separation distances between wells and detention or infiltration practices? *(100' from residential wells, 1200' from municipal well, wellhead protection?)*
- \_\_\_ Do stormwater practice designs comply with adopted technical standards?
- \_\_\_ Does the proposed outlet device allow for future drawdown for maintenance?
- \_\_\_ Does the plan protect groundwater resources? *(pretreatment before infiltration).*
- \_\_\_ For wet detention basins, are the soils and watershed adequate to maintain a permanent pool? Is topsoil specified to be reapplied on the safety shelf?
- \_\_\_ Are inflow and outflow channels adequately armored to prevent erosion?
- \_\_\_ Is enough plan detail provided for correct installation of practices? *(rock channel cross-sections, profiles, elevations, etc)* Is an engineer assigned oversight of construction?
- \_\_\_ Does the plan allow adequate access to stormwater practices for future maintenance? How about sediment disposal areas?
- \_\_\_ Have other applicable permits been obtained by the applicant?  
*(Chapter 30 – DNR, NR 216 – DNR, Shoreland & local zoning- County/Town, 404 Wetlands-Army Corp.)*

**Note:** A similar form may be sent to you by the plan reviewer to indicate missing items.